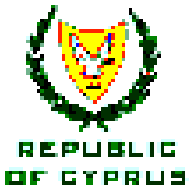


NATIONAL ACTION PLAN

FOR CYPRUS

Report prepared in the framework of the Strategic Action Programme (SAP)

NICOSIA

SEPTEMBER, 2005

PREFACE

This document comprises the National Action Plan (NAP) for Cyprus. It has been prepared in the framework of the implementation of the Strategic Action Program to address pollution of the Mediterranean from Land-Based Activities.

This NAP has been developed based on the results of the existing National Diagnostic Analysis(NDA), the Baseline Budget Reports (BB) and the National Sectoral Plans, as well as a number of national reports on related issues.

CHAPTER 1: INTRODUCTION

The legal framework in Cyprus is well developed and its recent harmonization with the EU aquis has contributed to its significant improvement so that it covers all aspects of pollution sources (Urban solid/liquid waste, Industrial waste, Air pollution, Hazardous waste etc.). This framework provides the basis on which the required necessary infrastructure (e.g. wastewater treatment plants, sanitary landfills, sewerage systems etc.), emission limit values, stakeholders obligations, economic instruments etc. are set and regulated.

The strive to meet the obligations that derive by the EU Legislation and which practically meet most, if not all, of the key issues raised by the SAP, satisfies in a great extend the targets and obligations set by the SAP.

Due to its small geographic size and the administrative structure of Cyprus, where powers and responsibilities lye on the central government rather than on local authorities, the Sectoral and National Action Plans are strongly connected for the majority of sectors under considerations.

CHAPTER 2: IDENTIFICATION AND ASSESSMENT OF NATIONAL SECTORS

2.1 Sector 1: Sewage Management

Countries are expected to ensure that by 2005, the coastal cities and urban agglomerations of more than 100 000 inhabitants are connected to a sewer system. In Cyprus there is only one coastal city with population high enough to require a sewer system. Nevertheless, all coastal cities and municipalities of the island either have or are in the process of completing the installation of central sewer systems. So far, more than 200 000 people (60% of the coastal population) are served by a sewer system and it is estimated that almost 8 million cubic meters of sewage is treated annually. However, the use of septic tanks in coastal areas that have yet to be connected to a central sewer system may result in the release of nutrients to coastal aquifers or coastal waters.

It should be noted that according to the obligations set by the EC Directive 91/271, further to the reference for areas with population equivalent (p.e.) greater than 10.000, an additional obligation refers to areas with p.e. between 2.000 and 10.000 that must provide for wastewater treatment by the end of the year 2012. At the basis of this obligation a government project is currently running for the sewage treatment of 38 communities with a population greater than 2.000 people. Consequently it is expected that the situation, with respect to urban wastewater discharges to coastal areas will be even further improved the following years.

The treated water arising from the sewer systems is mainly used for irrigation purposes or it is recharged to aquifers.

Despite the operation of sewer systems in all coastal communities, it is estimated that about 86 tons of nitrogen and 17 tons of phosphorous find their way to coastal waters, resulting in occasional abnormal algal blooms in the discharged areas. A total of 17 tons of nitrogen and 11 tons of phosphorous are intentionally released into coastal waters due to poor planning for the use of reused water.

Sludge treatment and disposal from the sewage system is a problematic issue since except from it's application on agricultural land as a fertilizer there is no other recorded method of disposal. Furthermore, the lack of emergency procedures and planning for the sewage system

e.g absent of emergency outfalls is an issue that needs consideration and it is currently under study by the Water Development Department.

2.2 Sector 2: Urban solid waste

Existing Situation

At the national level, governmental authorities have the responsibility for planning and for organizing the solid waste management system. The Ministry of Agriculture, Natural Resources, and Environment is the competent governmental authority dealing with solid waste management. The Ministry of Interior is also involved because it is the competent government authority, which comes with direct contact with the municipalities.

According to the Municipal Law, the municipalities have the full responsibility for implementing the solid waste management systems and thus collecting and disposing the waste. They, however, still have to get government approval for any important and financial decisions they make. Each municipality is responsible for waste collection in its own areas, and the municipalities are also the ones that own and maintain collection equipment. The waste is collected by municipality employees 2-3 times per week depending on the season and on the amount of waste in each specific district. The municipality employees collect the waste from the curbside where the residents, either in plastic bags or in various plastic containers, place it. Households, shops, industries, and restaurants are charged with a fee for having their waste collected by the municipality. This waste collection fee is established by the board of the municipality and it depends on the type of the premises served. Each municipality is free to fix the charges, which is the only source of income for waste management.

According to the Cyprus sectoral plan, approximately 360 000 tons of solid wastes are produced in Cyprus every year and is predicted that this amount will reach 530 000 tons annually by 2007 (table 1). Based on the results of the Municipal Solid Waste Recycling Study, municipal waste ending up in landfills include 17% paper, 8 % cardboard, 13% plastic, 4% metal and 3% glass.

Recycling is limited, because of the wide spread of very small communities all over the island; absence of fiscal incentives/disincentives; diseconomies of scale; high transport costs

for exports; high labour costs and labour shortages; large fluctuations in international prices; and high initial investment costs. The recycling industry largely relies on the partial processing of recyclable materials for export. Paper and cardboard is baled and exported except for paper cardboard waste products from printing works, which are recycled locally. Some small quantities of glass are being recycled at a glass industry. Concerning plastic, clean waste plastics from industries are collected in small quantities and recycled at a plastic's recycling plant.

Table 1.: Future amounts of different waste fractions in Cyprus for the year 2007.

District	Glass	Paper	Card boards	Metal	Plastic	Textiles	Wood	Garden Waste	Organic waste	Other	Total
Nicosia	2 254	35 306	18 217	4319	22 724	12 583	1878	17 462	60 659	12395	187800
Limassol	1618	25 342	13 706	3100	16 311	9032	1348	12 536	43 540	8897	134800
Larnaca	976	15 284	7 886	1870	9837	5447	813	7561	26 260	5366	81300
Paphos	751	11 769	6 072	1440	7574	4194	626	5822	20 220	4132	62600
Paralimn	764	11 976	6 179	1465	7708	4268	637	5924	20 575	4204	63700
Total	6 363	51 430	51 430	12 194	64 154	3552	5302	49 308	171 254	34994	530200

All values are in tons/y

The collected waste are disposed at the seven semi-controlled landfills and about 100 uncontrolled landfills around the island. In some cases waste are disposed at temporary sites near the coast or illegally damped in remote areas. None of the current dumping sites on the island fulfills the provisions of the standards set by the EU. The landfills in Cyprus pose a great environmental risk as there are risks of leachate polluting the groundwater and the marine environment, odor nuisance and atmospheric pollution from the illegal burning of waste on uncontrolled dumping sites.

2.3 Sector 3: Air Pollution

Existing situation

In Cyprus the main contributor to air pollution is the energy sector (78.2% of total emissions) and especially the transport sector, which accounts for 46% of energy consumption. The main

pollutant emitted in the Cyprus atmosphere is CO_2, which accounts for almost 78% of the total atmospheric emissions (1998 figures). CH_4 accounts for 10% while NO_x accounts for 11.5%.

Other sectors such as agriculture, industry and waste contribute only 8.3%, 7.4% and 6% respectively and are not considered to be significant contributors to the pollution of Cyprus air.

Areas of concern are the steady increase in vehicle numbers (46% between 1990-1998) and the increased burning of fossil fuel for energy consumption. The energy consumption from the shipping and aviation could also be investigated as they account for the emission of about 1-2 Mt of CO_2 annually.

Cyprus was characterized by a lack of measures, incentives and actions to reduce atmospheric emissions. However, a realisation of his fact has lead to the initiation of a number of measures over the last 2-3 years.

Within the framework of LIFE-third countries, a study for the "Legislation and Policy options for air quality in Cyprus" has been completed and provided the basis for a number of ministerial orders and regulations that satisfied the EU directives.

2.4 Sector 4: Pollution caused by Hg, Cd and Pb

Existing situation

According to the Sectoral action plan for Cyprus, there are no significant problems caused by CD, Pb and Hg in the country. Any negligible release of these substances is regulated by national legislation under the Fisheries law and the Regulations and Water Pollution control law.

2.5 Sector 5: Organohalogens

Existing situation

According to the Sectoral action Plan for Cyprus, the organohalogen problem for the country is limited to the presence of small amounts of organohalogenated pesticides, used in agriculture, and Halogenated Aliphatic Hydrocarbons (HAH), found in paints, solvents, organic chemicals and laboratory solvents. National legislation that satisfies the EU directives (91/414/EEC and 98/8/EEC), a number of relevant regulations and action taken by the Pesticides Authorization Board has resulted in the withdrawal of a number of active substances and the further elimination of organohalogenated pesticides. As far as wastes that contain HAHs are concerned, it is estimated that the quantity of liquid and solid waste from paints/varnishes is about 500m^3/y and 40 m^3/y respectively, while 6000 and 15 are the liquid and solid waste found in organic chemicals and laboratory solvents, respectively.

At present, these waste are transferred and treated at "Vathia Gonia" industrial wastewater treatment facility. Worries are expressed regarding the way they are treated and the fact that the exact quantities of HAH contained in them are not known.

2.6 Sector 6: Wastewater and solid wastes from industrial installations

Existing situation

According to the sectoral action plans, there are only four wineries (LOEL, EKTO, SODAP AND KEO) and a brewery (KEO) which discharge their effluents into the sea. All these installations are located along the Limassol coast. Furthermore, the treated waters from the Cyprus Petroleum Refinery are also discharged into the sea, after they are mixed with cooling water. Based on data from the sectoral action plans, the above five industried discharge wastes with the a BOD load of 1650 tons/y, 954 tons/y of solids, 34 tons/y total N and 3 tons/y of total P.

Recently (2005), the construction of a wastewater treatment plant for the KEO brewery/winery was finalized. This facility will substantially decrease the solid and nutrient loads discharged at an estimated 50% of current levels.

All the installations are already connected or soon to be connected to the Limassol central sewerage system for the treatment of their domestic effluents, a fact that will contribute to the further decrease of the amount of nutrients discharged into the sea.

The petroleum refinery, located at the coast of Larnaca, has already seized its operation as a refinery in May 2004 and is currently functioning as a terminal until its final closure in 2010. A study that has been prepared to assess the environmental impacts of the conversion of the refinery to a terminal station proposed the installation of a second effluent treatment facility that will decrease the effluent BOD to less that 30 ppm.

2.7 Sector 7: Lubricating oils, Batteries and Accumulators, Hazardous wastes

Batteries

Existing situation

The sum of batteries circulating in the Cyprus market are estimated to about 2150 tons/year:

- 300 tons for domestic use
- 200 tons for industrial use
- 1650 tons of Pb batteries used in cars and machinery

There is no battery production in Cyprus except from a single factory that produces certain types of Pb car accumulators (20% of the market). The great majority of batteries and accumulators used is Cyprus is imported from other countries. Between the periods 1998-2001, almost 6 million batteries and 400 000 accumulators have been imported in Cyprus but with a steady decrease noted throughout the years. The decrease in imports between 1998 and 2001 was of the order of 8.1% and 10.6% for batteries and accumulators respectively. This is an encouraging fact since the decrease in battery and accumulator use is encouraged and targeted by the EU.

Currently there is no formal recycling schemes of Pb from batteries and accumulators in Cyprus, hence the total of the recovered batteries and accumulators are exported to other

countries where there are recycled. It is estimated that the degree of Pb recovery in Cyprus is very high and of the order of 80-85%. There is also a small dry cell recycling project run on a non profit-making concept by an NGO and a number of schools. The material collected is also exported for treatment.

It must be noted that the private sector has expressed interest in operating a recovery and treatment installation for batteries and accumulators, a proposal that is under consideration by the authorities.

The EU Directives concerning "Batteries and accumulators containing certain dangerous substances" (91/157/EEC as amended) and the "Labelling of Batteries" (93/86/EC) have been fully transposed into Cypriot legislation via the law on Solid and Hazardous Waste Management. Furthermore, a study has been completed on the management of batteries and accumulators that outlines all he necessary steps to be taken in order to implement the EU Directive.

Lubricating oils (waste oils)

Existing situation

Cyprus has fully transposed its relevant legislation to the "Disposal of Waste Oils Directive 75/439/EEC" by the adoption of the Air Pollution Control law and the law on Solid and Hazardous Waste Management. Furthermore, a specific study on the management of waste oil has already been prepared and approved by the Council of Ministers.

According to the Cyprus sectoral plans, 4800 tons/year of waste oils are produced in Cyprus mainly from garages and filling stations and industrial installations. Table 1 shows the quantities and fate of waste oils for the year 2003.

Table 2 Quantities and fate of waste oils

		Tons/y	**%**
	Waste oils (estimated)	4,800	100
1	Exported (measured)	2,880	60
2	Unrecoverable (calculated)	170	3.5
3	Illegal Burning		
	a) Statistically estimated	780	16.3
	b) Garona estimate	1,120	23.3
	Uncounted for (uncertainty not calculated)	700	13

Currently, there is no formal framework for the collection of the waste oils in the country but there is an informal collection system organized and driven mainly through the application of market forces. The recovered waste oil is partly processed in Cyprus by the private sector and then it is either reused or exported for recycling or disposal.

It is noticeable that almost 40% of the waste oil produced is disposed uncontrollably or it is burned in non-controlled facilities, thus contributing to environmental pollution.

Hazardous Waste

Existing situation

Despite the fact that the types of chemical substances imported and handled in Cyprus are of a wide variety, the respective quantities are comparatively small. According to the Sectoral plans, the total quantities of hazardous waste produced in Cyprus is about 83 000 tons/year. The analytical breakdown of the quantities of hazardous waste is shown in table 3. The main industrial sectors importing such substances are the metallurgical industry, home cleaning products, tannery waste and dyeing industry.

Some hazardous waste such as laboratory waste and clinical waste are collected, treated or exported but other such as and paints and varnishes are disposed along with municipal waste without undergoing any special treatment.

As there is no formal collection system for hazardous waste, the setting of a national hazardous waste collection system should is a priority. Already, a relevant techno-economical study is under way for the evaluation of alternative scenarios for the hazardous waste management system.

Table 3 Estimated quantities of hazardous wastes in Cyprus (Year 2001)

Type of waste	Liquid wastes(M^3/Y)	Solid wastes (tns/Y)
Paints, varnishes, solvents	500	400
Horticulture chemicals (Herbicides)	80	400
Clinical wastes	-	450
Tannery wastes	11 500	-
Wastes from metallurgical and electroplating industries	22 500	45
Wastes from dying industries	37 500	-
Liquid wastes of laboratories containing heavy metals	3 000	-
Sludge from electric power stations	-	150
Liquid waste containing organics	6 000	-
Laboratory organic solvents	15	-
Solvent sludge (printing offices, oil refinery)	-	200
Cutting oils	5	-
Oils sludge	-	80
Obsolete chemicals	-	5
Municipal wastes	-	770
Office wastes	-	160
Total	81 100	2 820

Source: 2002, Techo-economical study for the evaluation of alternative scenarios for the hazardous waste management, GEO-INVEST, EPR.

Sector 8: Updating and adopting of National regulations on sewage discharges to the sea and rivers.

The legislation on sewage discharges into the sea and rivers have been updated and amended recently. This Legislation is based on the "combined approach", where Water Quality Objective (WQO) and Emission Limit Value (ELV) are used mutually reinforce each other.

At first place provisions in Regulations, approved under the Sewerage and drainage Law, impose conditions concerning the nature and character of waste discharged into a public sewer as well as effluent standards for industrial waste to be allowed into them. The above provisions are in full agreement with precautionary principle.

Based on the Water Pollution Control Law a number of specific Regulations for sewage discharges, have been endorsed as follows:

Water Pollution Control Law (Discharges of Municipal Wastes)

Regulations of 2003 based on the articles 5(2), 7(4) and 34(2), of the Water Pollution Control Law of 2002.

Regulation	Basic Provisions	Enforcement Authority
No. 4 Sites of discharges	Discharged sites of municipal waste must be selected so that environmental impacts to receiving water to be minimal	MANRE/Environment Service
No. 6. Conditions for discharges	All discharges from sewerage treatment plants must fulfill the requirements as set for in Annex I. In case where discharges are to be conducted in sensitive areas, the Minister may permit such discharges, if the total nutrient loads are further decreased to 75% for P and N.	MANRE/Environment Service Minister of MANRE
No. 8. Sensitive areas	The Minister, based on his powers under article 5 of the basic Law, declares the latest by 31st December 2003, sensitive areas according to the criteria which are defined in part A of Annex II. Declared sensitive areas are listed and kept by the Minister.	Minister of MANRE
No. 9. Less sensitive areas	The Minister may declare less sensitive areas in the territory of the Republic based on the criteria which are defined in part B of Annex II.	Minister of MANRE
No. 10. Discharges to less sensitive areas	Municipal wastes which are discharged to coastal waters from urban installation with 10,000 to 150,000 population equivalent, in case where the discharged sites are less sensitive, might be undergoes less strict treatment on the condition that based on studies the Minister considers that these discharge have not negative impacts to the environment.	Minister of MANRE
No. 16. Discharge of municipal sludge	The discharge of sludge from the municipal wastes treatment plants is prohibited unless an authorization was given by the Minister according to the Law. The discharge should take place in a way that the negative effects to the environment to be minimal.	Minister of MANRE

MANRE: Ministry of Agriculture, Natural Resources and Environment

Water Pollution Control Law / Discharges of Municipal Wastes)

Regulations of 2003 based on the articles 5(2), 7(4) and 34 (2) of the Water Pollution Control Law of 2002.

Regulation	Basic Provisions	Enforcement Authority
No. 17. Monitoring and Control of discharges	The Minister should monitor and control - The discharges from the sewage treatment plants so that to be in conformity with Part A of the Annex I - Following the methodology as is described in part B of Annex I. - The amount and composition of the disposed sludge and - In cases where domestic wastes discharges are taking place in less sensitive areas the necessary studies have been carried out so that to be secured that the discharges do not cause any negative effects to the environment.	Minister of MANRE
No. 18	The Minister prepares and publishes every two year report with the discharges of domestic effluent and sludge from the sewerage treatment plants. His report is transmitted to the Environment Committee, approved and published.	MANRE/Environment Service

Annex I

REQUIREMENTS FOR MUNICIPAL WASTES

PART A. Discharges of municipal wastes from sewerage treatment plants

1. Adequate sampling from influents and effluents (treated) before the discharge.

2. The discharges should fulfill a number of requirements as define in table 1. In addition the discharges of municipal wastes to sensitive areas with eutrophication problems should fulfill the requirements as they lay down in table 2.

3. Discharge sites of municipal wastes, should be selected so that their effects on recipient waters to be minimal.

PART B. Reference methods for the Monitoring and assessment of the situation.

1. Twenty-four hours composite samples at the outlet point. Samples analysis should be based on international laboratory practices.

2. Annual minimum number of samples in determined according to the treatment plant size:

   - 2,000 - 9,999 population equivalent: 4 samples
   - 10,000 - 49,999 " " : 12 "
   - > 50,000 " " : 24 "

3. The treated effluents are considered to fulfill the relevant parameters, if for each one parameter separately, the samples show that they correspond to the parameter value as follows:

(a) For the parameters which are defined on Table 1 and primary treatment, the highest acceptable number which is allowed not to be fulfill with the requirements for the concentration of Table 1.

(b) For parameters of Table 1, regarding the concentrations, the samples outside the standards, should not deviate for the maximum values of the parameters more than 100%.

(c) For the parameters, which are referred to Table 2, the annual mean value of all values of the samples for each parameter should not exceed the maximum values.

Table 1
Requirements for discharges from sewerage treatment plants government by the regulations 3 and 4

Parameter	Concentration	Minimum Percentage Reduction (1)	Reference measurement methods
BOD_5 Without Nitrification(2)	25mg/l 0_2	-70-90 - 40 according to Reg.3 para 2	Homogenized, not filtered sample standard BOD_5 method. Addition of Nitrification inhibitor.
COD_4	125mg/l 0_2	75	Homogenized, filtered sample. Potassium dichromate.
Total suspend solids	35(3)	70 According to Reg. 3,Para 2	Standard method for TSS

(1) Reduction according to the load of incoming sewage.
(2) This parameter might be substitute by TOC
(3) Requirement not compulsory.

Table 2
Requirements for discharges from sewerage treatment Plants, to sensitive areas where eutrophication occurs as they are define in Annex II Point A, element a.

Parameter	Concentration	Minimum percentage reduction (1)	Reference Absorption Photometry
Total Phosphorus(2)	2 mg/l P (10,000-10,000 Pop. Equiv.)	80	Molecular Absorption photometry
Total Nitrogen	15 mg/l N (10,000-10,000 Pop. Equiv.) 10 mg/l (> 100,000 Pop equiv.)	70-80	“

(1) Reduction according to the load of the incoming sewage.
(2) The total Nitrogen means the sum of Total Kjeldahl Nitrogen the $N0_3$ and NO_2

Table 3

Number of samples taken During the year	Maximum Number of samples allow to deviate
4-7	1
8-16	2
17-28	3
29-40	4
41-53	5
54-67	6
68-81	7
82-95	8
96-110	9
111-125	10
126-140	11
141-155	12
156-171	13
172-187	14
188-203	15
204-219	16
220-235	17
236-251	18
252-268	19
269-284	20
285-300	21
301-317	22
318-334	23
335-350	24
351-365	25

Annex II

(Regulation 8,9)

CRITERIA FOR DEFINING SENSITIVE AND LESS SENSITIVE AREAS

PART A. SENSITIVE AREAS

A water body (mass) is defined as sensitive it falls in one of the following categories:

a) Natural artificial lakes, river mouths, coastal waters where appears or might appear eutrophication if no protective measures are applied.

a) Surface freshwaters to be used for the abstraction of potable water which contain Nitrates concentration higher than those define by relevant legislation.

b) Areas which require further treatment than those define by regulation 3.

PART B. LESS SENSITIVE AREAS

A marine water body or area might be define on less sensitive area if the discharged treated effluents do not affect the environment due to morphology, hydrographic or hydraulic conditions which dominate.

Sector 9: Prohibition of the Manufacture, Trade and New Uses of PCBS

The policy for the protection of the environment from PCBs is based on two axes of action the control of their discharges and their management.

a. Control of discharges

The discharge of PCBs/PCTs is controlled by the Water Pollution Control Law. No. 106(I) of 2002 and relevant Regulations; Prohibition of discharges No. 52 of 1993, Application for license for discharge of wastes, Creation of Register for discharges No. 116 of the 1996 and the Council Ministers Order; Measures for the protection of underground water No. 45 of 1996.

b. Management of PCBs

The management (Prohibition of use, proper disposal, elimination) of PCBs is controlled by the basic Law; The solid and/dangerous wastes Law No. 215(I) of 2002 and relevant/specific Regulations on PCBs/PCTs which are the following:

i) Regulations of polychlorinated Biphenyls and polychlorinated terphenyls (PCB/PCT) No. 6367/2002, based on articles of the basic Law.

Regulation 5:

1) Defines that the possessor of equipment which contains volume of PCBs greater than 5dm^3 is obliged to submit to the Minister of Agriculture Natural Resources and Environment, signed statement with the following information.

a. Name and address
a. Place and description of equipment
b. Quantity of PCBs of the equipment.
c. Dates and Type of treatment or substitution which has been carried out or will be carried out.

(2) The processor of equipment of which its fluids contain PCBs between 0,05% and 0,005% W/W, are obliged to submit to the Minister information as above.

Regulation 6

(1) The Minister creates inventory with the statements as they are defined in para 10 and Regulation 5 which is continuously updated.

(2) The Minister sends this inventory to the European Commission.

Regulation 7

The Minister controls the quantities of PCBs through the chief and other inspectors as it is defined in the Law.

Regulation 8

Provides for the identification of all equipment, which is listed in the Inventory.

Regulation 9

The Minister develops national plan for the decontamination and /or disposal of the equipment which are covered by Regulation 6 and collection and future disposal of the rest of equipment.

Regulation 10

Prohibits the separation of PCBs from other substances for the purpose of their reuse.

Regulation 12

Defines the terms and conditions for their transport to the licenced installation for the decontamination or disposal of PCBs.

Regulation 13

Regulates the method of PCBs disposal. The incineration of PCBs or equipment containing PCBs on ships is prohibited.

Regulation 14

Determines the terms and conditions for the licencing of an installation which deals with decontamination of wastes.

ii) Regulations for the management of used oils No. 637 of 2002 based on article 5 of the basic Law for the solid and dangerous wastes No. 106/2002.

Regulation 7

Defines the special terms in respect of the PCBs/BCTs in the case of granting of license for the management of fossil oils.

- The basic oils resulted for the regeneration should not contain PCBs/PCTs greater than 50ppm.

- In case where used oils contained PCBs/BCTs the regeneration method should destroy or otherwise should reduced than so the regenerated oils to have less than 50ppm PCBs/BCTs.

Regulation 8

Defines that the mixing of reused oil with those containing PCBs/BCTs is prohibited.

ii) Law No. 12 (III) of 2000, which ratifies the amendment of Convention for the transboundary movement and disposal of dangerous wastes.

The above legislation consist the basis for the execution of a number of projects of the elimination of PCBs. A decontamination project (chemical dechlorination) has been completed, covering some 560 transformers of the Electricity Authority. The project was undertaken after about 2000 transformers were investigated. A full programme is being put in place by preparing an inventory of contaminated equipment at the private sector, the identification of their PCBs content and their decontamination by 31st December 2010.

Sector 10: Phasing out of the use of the nine pesticides except for those for which WHO recommendations related to the safeguarding of human life suggest otherwise.

a. Control of Pesticides

Pesticides use in Cyprus including home use pesticides and wood preservatives is control by the provisions of specific comprehensive legislation, the "Pest Control Products Law No. 1(I)/93 and the "Pest Control Products Regulations of 1993". The responsible body for the implementation of the law is the Pest Control Product Board. The law and the relevant regulations provide for the control of the import, manufacture, marketing, quality labeling, toxicity, classification, use and storage of pesticides.

Formulated pesticides are classified into three classes of toxicity each having a district warning symbol. Toxicity classification is based on WHO proposals and the warning symbols are those adopted by E.U.

The Pesticides which may caused serious risk to human heath and the environment including the nine pesticides i.e. DDT, aldrin, dieldring, endrin, chlordane, heptachlor, mirex, toxaphane and hexachlorobenzene, have been totally banned.

The FAO code of Conduct on the Distribution and Use of Pesticides laws have been endorsed by Cyprus, as well as the London Guidelines for the exchange of information on Chemicals in International Trade (Prior Informed Consent), implemented in collaboration with FAO and IRPTC of E.U.

b. Control of Pesticides residues

The Pesticides Regulation of 1983 to 1994 under the Food and Drugs Law of 1967, form the Cyprus statutory instrument for fixing MRLS in and on fruit and vegetable. The Ministry of Health is responsible for the implementation of this legislation. The

Cyprus MRLs are in agreement with those fixed by the codex Alimentations Commission of the UN and WHO, as well on those of the EU Directives.

Sector 11: Establishment of a system of previous authorization by the competent national authorities for works which cause physical alterations on the natural state of the coastline or the degradation of coastal habitats.

In Cyprus the coast is a fragile ecological system and at the same time the backbone of the economy. This conflict between effective protection and building development translates into pressures for tourism and associated land uses attracted by the coastal landscape that in term cause its quality to determinate due to over development and in some cases development too close to the sensitive ecosystems.

In view of the above there is no doubt that a legal framework and management tools are needed for the protection of coastline and the conservation of habitats.

a) Existing Legal framework

The Town and Country Planning Law No. 90/72, Amending Laws 56/82, 7/90, 28/91, 91(1)92, 55(1)93, provide for the Preparation of Development Plans, for regulation, control and promotion of physical development through planning policy instrument including the issue of Planning Permission. Through this law sensitive ecological areas have been declared as Coast and Areas for the Protection of Nature, with very prohibited provisions as the development control is concerned.

The Foreshore Protection Law No. 22/61 as it is amended, Based on the provisions of this law a foreshore protection zone has been established in which it is prohibited to perform certain works, build or construct various structures and building dispose waste or place articles on beach.

The Law No. 57(I)2001, made the Environmental Impact Assessment (EIA) Mandatory. The Environment Service according to this law entitle with powers to issue statements on proposed projects that have to be taken very seriously by competent Departments in addition to permitting procedures which are already established (i.e. The Department of Town Planning and Housing for private projects and the Council of Ministers and the Planning Bureau for public projects.

b) Tools and Coordinating bodies

The existing tools and institutions for the protection and management of the coastal environment and the regulation of the coastal development are as follows:

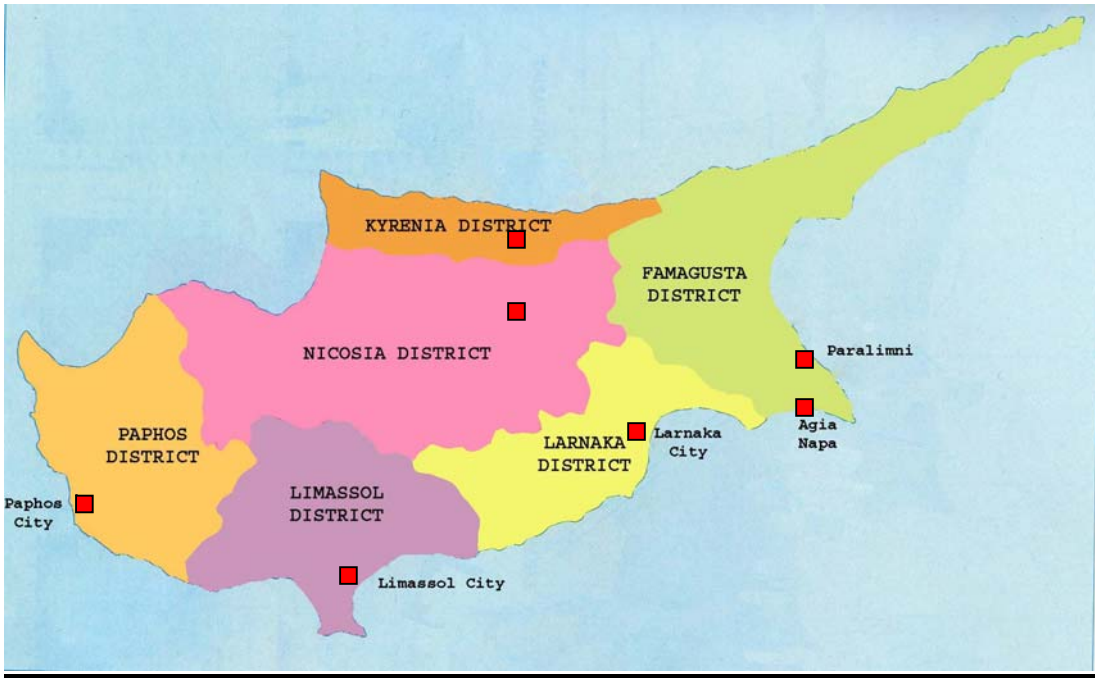
Tools	Focus
Land use zones	Designated by the Development Pans and implemented through planning permissions
Protected areas	Designated by the Development Plans
Planning permissions	Issues on the basis of the provisions of the Development Plans and implemented through planning permissions
Natura 2000 sites	Identified by the provisions of EU Directive 92/43 to be incorporated in the Development Plans
Environmental Impact Assessment	Established by Law 57(I)2001 applying to a large category of development in all areas including the coastal zone implemented by the Environment Service and enforced through concrete projects by the Dept of Town Planning & Housing through the issue of planning permissions.
Tourism Strategy	As a broad strategic document approved by the Council of Ministers, its goals and objectives are expected to be incorporated in sectoral policies, particularly land use zones and the policies contained in the (Spatial) Development Plans.
Sectoral regulations	Provided in different sectoral Law and regulations applying to the protection of the coastal and marine environment from pollution, wastes, construction, etc.

Co-ordination Bodies	Focus
Planning Board	Exercising delegated powers, responsible for the approval of Spatial Development Plans. It includes 10 members, 4 private members, including the Chairman, and 6 representatives of various key Ministries (Interior, Planning Bureau, Finance, Agriculture, Natural Resources and Environment, commerce, Industry and Tourism, communications an Works. Observers include representatives of the Cyprus Tourism Organization, the Environment Service and others according to the agenda, while technical advice is provided by the director and Staff of the Town Planning and Housing. The Development Plans, as spatial plans, are expected to reflect the policy priorities and

	objectives of industrial, agricultural, commercial and particularly tourism policy.
Common Councils	They are established by the TCPL and act as local advisory bodies to the Planning Board. Before a Development Plan is presented to the Planning Board for adoption or change, proposed Development Plans are reviewed by Common Councils. Participants include local municipal councilors and representatives of NGOs.
Technical Environmental Committee on EIA	The Committee is chaired by the Director of the Environment Service and functions under the provisions of the EIA Law 57(I)2001, It reviews EIA studies submitted by applicants of development projects. The Committee's views and conclusions that have to be taken very seriously into consideration prior to the issue of Planning Permission for the development. The Committee comprises representatives of all key Ministries and Department related to the environment (Planning, Public Works, Health, Geological Survey, Water Development and Cyprus Tourism Organization).
National and Local Committee on Beaches	A two-level and hoc inter-departmental committee set up under the Foreshore Protection Law (enforced by the Ministry of the Interior) advising on the use and management of land within the protected foreshore area (some 90-100 meters from the high tidal point) such as coastal construction, beach recreation areas, fishing shelters, sea break waters, erosion protection works, etc. The National Committee has 13 members, is chaired by the Chairman of the Union of Municipalities and includes representatives of relevant Ministries, and NGOs. The District Committee has as similar role as the national committee at the local level, has 7 members, is chaired by the respective District Officer and includes representatives of local authorities and relevant Ministries/ Department.

CHAPTER 3: ADMINISTRATIVE REGION ISSUES

The island is divided into 6 administrative regions: Nicosia (landlocked), Larnaca, Limassol, Paphos, Famagusta (Paralimni and Agia Napa villages) and Kyrenia (occupied) districts. Due to the small geographical size and the relatively small scale of the pollution problems, the whole island is considered as a single region for the preparation of the NAPs. However, for the two main pollution issues: sewage and urban solid waste, regional break down is also presented.



3.1 Paphos District

3.1.1 Sector 1: Sewage Management

Within Paphos District the city of Paphos is the only major urban area. Paphos municipality has a population of about 28 000 people. Paphos is an important and rapidly expanding tourist centre with a large number of hotels and tourist housing along its coast.

In 1997 the construction of a Sewage Treatment Plant (STP) was proposed to be completed in two phases, in order to satisfy the needs of the whole Paphos district

which hosts about 95 000 people. The plant was built in 2002 and is under normal operation. Phase 1 of the project is to be completed in 2006 with the capacity to serve 50 000 people and a maximum sewage flow of 10 000 m^3/d. Phase 2 is planned to conclude in year 2020 to serve a population of 100 000 people and a maximum sewage flow of 25 000 m^3/d. This means that until the second phase is completed, almost half the population of the district (45 000) will not be served by the Central Sewerage System. Considering that a large proportion of this population is located near the coast, there is the possibility that quantities of sewage find their way into coastal water through the septic tanks of houses.

The Paphos STP is a tertiary treatment plant with nitrogen and phosphorous removal from the treated sewage. Table 4 gives some effluent quality values for Paphos' STP.

Table 4 Effluent quality characteristics for Paphos STP

Parameters	**Design Effluent Standards**				
	TSS (mg/l)	**BOD_5 (mg/l)**	**Total N (mg/l)**	**Total P (mg/l)**	**Conductivity (µS/cm)**
Secondary	30	20	20	10	1500
Tetriary	10	10	10	5	1500

Source: Paphos Sewerage Board

The sewage plant is equipped with an 8 000 m^3 emergency storage lagoon to divert effluents in an emergency while the construction of an emergency sea outfall is also under study.

The treated effluents of the STP are preferably reused (considering the scarcity of water in Cyprus) and their discharge to sea is inhibited. The reuse of the sewage effluent involves primarily the irrigation of agricultural fields or the recharge of groundwater aquifers.

3.1.2 Sector 2: Urban solid waste

Paphos is the first district in the country that has constructed a sanitary landfill that can accept waste and satisfy the standards set by the EU legislation.

3.2 Larnaca District

3.2.1 Sector 1: Sewage Management

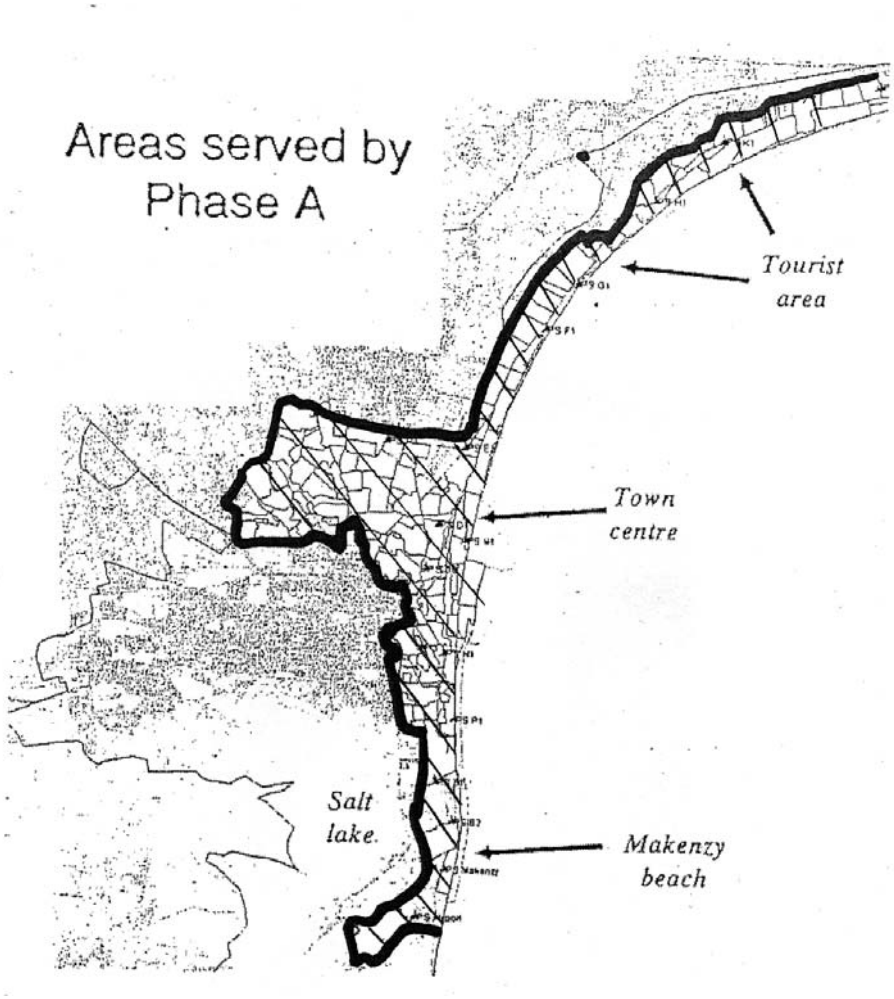
The Larnaca district is home to 47 000 people and its largest urban centre is the city of Larnaca. Larnaca is a significant tourist population and home to the largest airport in the country. The city is served by a STP that is to be constructed in two phases. Phase 1 has been completed in several stages and satisfies the needs of almost 30 000 people, that is 63.8% of the population. It comprises of about 100 Km of sewers and 17 pumping stations that connect to the system the city centre, the Dekeleia tourist area, the Makenzy tourist area and the airport (See figure 1). It is estimated that 2 million tons of sewage is treated in the plant every year.

During its years in operation, a number of faults and problems have been observed at the Larnaca SWT plant. These problems include:

- Flat sewer gradients causing siltation and low flow velocities.
- Grease and oil accumulation causing blockages of the sewers
- Manholes are too far apart making the cleaning of the sewers difficult
- Deterioration of concrete surfaces and pipework due to septicity

The treated effluent has been so far used for irrigation in landscaping and agriculture but in winter months, there is a surplus of treated effluent.

Figure 1: Area served by Larnaca SWT

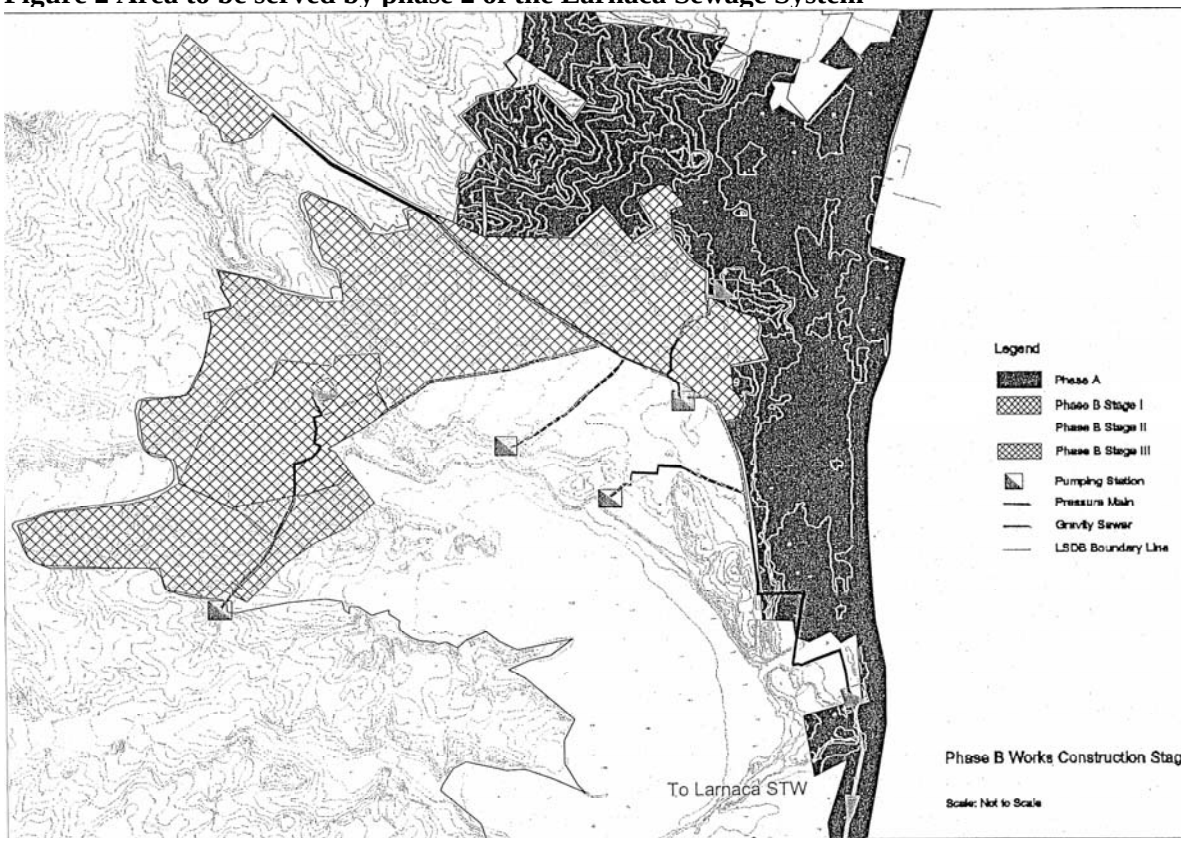


Source: Feasibility study of Phase B of the Larnaca sewerage system

Sludge disposal has also been a problem in Larnaca due to insufficient demand for agricultural reuse. This has led problems to the treatment process and deficiencies in effluent quality.

Design of Phase 2 of the Larnaca Sewage treatment works is expected to be completed by the year 2007 and will serve the whole of Larnaca which is expected to grow significantly both in resident population (60 000 by year 2020) and tourist population (4000 tourists/day by 2020). The area to be served by phase 2 of the sewage system is presented in figure 2.

Figure 2 Area to be served by phase 2 of the Larnaca Sewage System



In addition to the extension of the sewerage system, the construction of an effluent outfall to the sea is also planned by the authorities in order to dispose, in emergency cases, the excess flows of treated effluent in the winter.

3.2.2 Sector 2: Urban solid waste

A study is currently under completion for the construction of a sanitary landfill site that will serve the district of Larnaca as well as the non-occupied areas of Famagusta (Paralimni and Agia Napa villages).

3.3 Famagusta District (Paralimni and Agia Napa)

3.3.1 Sector 1: Sewage Management

The two largest urban centres of the non-occupied area of the Famagusta district are the villages of Paralimni and Agia Napa, which are two of the most popular tourist

destinations in Cyprus. They have a combined population of about 50 000 people, 80% of which are served by the Central Sewage System with the following capacity:

Max. Daily flow 12 000m3/d
Average daily flow 10000

It is expected that in two years there is going to be an upgrade of the sewage treatment plant in the secondary and tertiary processes that will increase the capacity of the plant to 20 000 m3/day.

The treatment plant processes about 2 million m3/year but there is a severe disposal problem since the demand for the treated wastewater is low, despite the large number of agricultural activities that take place in the area. The lack of demand is due to the poor quality of the treated water which has high salt content. A number of solutions to this problem have been proposed by the authorities including the construction of a storage dam, sea outfall or desalination plant for the wastewater. The preferred solution however seems to be the reuse of the water to recharge the local aquifers.

3.3.2 Sector 2: Urban solid waste

See section 3.2.2

3.4 Limassol District

3.4.1 Sector 1: Sewage Management

The Limassol district is the second largest city in the country and the only coastal district that has a population larger than 100 000. Limassol is served by a central sewerage system that was completed in two phases:

Phase A : 1992/1995
Phase B : 1997/2003

The Central Sewage System serves about 10 000 installations and a population of 80 000 people, that is 50% of the population within the limassol sewerage board area (SBLA). Aim of the SBLA is to connect all the population of the wider Limassol area to the CSS and a feasibility study and EIA for the expansion of the central system has already been prepared.

The limassol SWT plant is the only one in Cyprus that functions an emergency sea outfall. A study by the Department of fisheries on the biological environment in the area of the sea outfall has shown that despite the fact the disposed effluent undergo tertiary treatment; the impact on the local aquatic biological communities is significant. The majority of the treated effluents however, is used for irrigation purposes in agriculture (a practise that is encouraged by Cyprus authorities) or for the recharge of the Akrotiri aquifer which has shown signs of depletion and low water quality.

The sludge produced by the SWT plant is currently utilized in agriculture, mainly for the fertilization of food crops. For this reason it must be ensured that the treated sludge is pathogen free.

3.4.2 Sector 2: Urban solid waste

Limassol is currently served by a main landfill at Vati area and a number of smaller dumping sites. A study for the upgrade of these landfills is scheduled to be completed in two years and the whole greater Limassol area is expected to be served by a number of sanitary landfills by the year 2010.

CHAPTER 4: NATIONAL PLANS

4.1 Sector 1: Sewage management:

Development of a national programme for the environmentally sound management of sewage.

The development of the national programme for environmentally sound manage of sewage is based on two instruments:

- The “strategic plan for the environment”
- Activities specified in the SAP but not yet implemented in Cyprus

In general, the National Programme consists of the following activities:

- The completion of the existing and proposed central sewage systems to serve all the population of coastal communities.
- Strengthening of the programmes for the reuse of the WTP effluents, and their integration in a wider design for water resources management, according to the well defined criteria of water reuse and the code of practice for their use in agriculture
- Adoption of a system for the control and monitoring of the biological treatment of sewage in the construction sites and tourist installations as well as improvement of the control mechanism of septic sewage tanks.
- Construction of emergency outfalls for the WTPs to serve for the discharge of the treated effluents in case their reuse is not possible.
- The reuse of sewage sludge in agriculture as a natural fertilizer
- Preparation of programmes for the monitoring of heavy metals and other dangerous chemicals from the treated liquid and solid waste**.**

	Proposed Projects
1	WTPs for communities with population greater than 2000
2	Paphos WTP-Phase 2
3	Larnaca WTP- Phase 2
4	Famagusta WTP-upgrade
5	Limassol WTP-Extension

4.2 Sector 2: Urban solid waste

The SAP targets for urban solid waste can be met by the implementation of the "Strategic action programme for the solid wastes in Cyprus" which has already been approved by the Council of Ministers in April 2004. The basic principles of the programme are:

- The reduction of the produced quantities of waste
- The reuse of waste to the extend possible
- The energy recovery and recycling of waste

The actions and measures to be taken for the implementation of this programme include:

- Improvement in the collection of waste with the supply of proper equipment and the proper organization of the collection network
- Sorting of waste at the source by the construction of collection centres and the purchase of recovered material s.
- Construction and operation of mechanical recycling units
- Promotion of composting and other biological treatment units for organic waste.
- Promote energy recovery from waste especially by using existing infrastructure
- Construction/completion of sanitary landfill sites to serve all communities.
- Improvement of existing dumping sites.
- Termination of all uncontrolled and unregulated dumping sites

- Restoration of abandoned sites following the termination of their operations.
- Combat the illegal dumping of waste in remote areas and especially on coastal sites.
- Implement national training schemes on proper management of waste

	Proposed Projects
1	Larnaca/famagusta sanitary landfill
2	Limassol sanitary landfill

4.3 Sector 3: Air Pollution

In respect of fuel quantities, a new law, harmonized Cyprus legislation with the directive 98/70/EEC. Specifically:

1. Adoption of a programme for the reduction of Nox and VOC emissions from the transport sector.

Strict implementation and enforcement of the legislation which defines the maximum limits of sulphur, lead and aromatic hydrocarbons as follows

		Un-Leaded gasoline		
		1.1.2004	1.1.2005	1.1.2009
Sulphur	mg/kg	5	5	5
Lead	mg/l	150	50	10
Aromatic substances	%v(V/V)	42	35	35

Leaded gasoline was seized according to the EU legislation from the first of may 2004.

2. The implementation of an action programme for the treatment of catalysts

3. Promotion of the use of public transport by the creation of more bus lines and the use of smaller buses, the urgent introduction of tangerial lines in major cities.as well as the introduction of incentives for the use of public transport.
4. New vehicle taxes

Furthermore, the following actions as described in the National Strategic Action for the environment to be approved by the council of ministers will result in reduction of air pollution:

- Finalization of the assessment of the atmospheric quality and preparation of zones with different levels of pollution
- The preparation of an integrated programme of IPPC for the atmospheric quality parameters, a programme that is already under implementation.
- Implementation of an integrated system for the monitoring and control of atmospheric pollution.

4.4 Sector 4: Pollution caused by HG, CD AND PB

Due to the insignificant nature of the problems caused by these substances, no additional programme other than the already in place legislation , is necessary.

4.5 Sector 5: Organohalogens

The harmonization of the legislation to the EU aquis has minimized to a great extend the environmental pollution caused by organohalogenated pesticides. The enforcement of the national legislation and the continuous monitoring of pesticides residues, in conjunction with the proper application of the redefined Good Agricultural Practices in Cyprus will be enough to tackle the organohalogenated pesticides problem.

As far as the Halogenated Aliphatic Hydrocarbons (HAH) problem is concerned, several Laws have been put in place,the last 2-3 years, which are related with the

management of hazardous wastes as well as specific legislation for the control of air pollution from chemical substances.

The provisions in the above legislation and their enforcement will result to the estimation of the exact quantities of the HAH and substances and to their better management.

The targets of SAP related to HAH ie the reduction of discharges of HAH by the year 2010 and their elimination by the year 2025, will be achieved with the enforcement of the following legislative provisions;

- Obligations of the holder of wastes:
  - *Take the necessary measures so that this wastes does not create any danger to human health or to the environment*
  - *Should deliver these wastes to the Licensed for the management of wastes person.*
- Measures for the reduction of dangerous wastes
  - *The responsible authority prepares and apply regulations for the promotion of the prevention and reduction of wastes with the;*
  - *Development of clean technologies*
  - *Application of Best Available Technologies*
  - *Recycling and reuse where it is applicable.*
  - *Technical specifications for the management of dangerous wastes including their labelling. Collection transfer and storage according to the international and EU regulations.*
  - *Creation of Register of dangerous wastes.*
  - *Each producer of dangerous wastes should keep register with dangerous wastes*
  - *Transmit this information to the Minister at least once a year.*

It should be noted that competent authorities have already been recruited the necessary staff for the implementation of the above legislation.

In addition to the above the government should proceed with the implementation of the National Plan for construction and operation of a station for the management of special wastes. The Ministry of Agriculture Natural Resources and Environment in cooperation with the other stakeholders proceeded with the preparation of the necessary techno-economical study and Environmental Impact Assessment study for the Construction and Operation of a centre (station) for the management of hazardous wastes. The Capital expenditure for this station is estimated to be about 20 million Euro and the operational cost of about 1.5 million EURO annually.

	Proposed Projects
1	Hazardous waste treatment center

4.6 Sector 6: Wastewater and solid wastes from industrial installations

The necessary actions that will achieve the reduction in the nutrient content and SS targets set by the SAP are at a great extend under way. The construction of wastewater treatment plants for the KEO brewery and winery, the connection of the rest of the wineries to the central sewage system and the conversion of the refinery to a just a terminal station will achieve a significant reduction (more than 50% BOD) in the amount of nutrients and SS discharged into the sea.

Other activities that could be adopted at national level are:

- The preparation of an inventory of point source discharges and emissions of pollutants in hot spots, areas of concern and by the industry.
- To reduce discharges and emissions of pollutants as much as possible by promoting the implementation of environmental audits, environmental management systems and the application of BET and BAT in the industrial installations
- To promote sound operation and maintenance of activities

4.7 Sector 7: Lubricating oils, Batteries and accumulators, Hazardous wastes

Lubricating oils

The strategy for the management of waste oils in Cyprus is proposed in a special study carried out on waste oils and that has already been approved by the Council of Ministers. This plan includes the following activities:

- *Enforcement of the existing legislation to further increase the already high collection efficiency and to maintain it at high levels.*
- *The implementation of continuous public education campaigns.*
- *The adoption of a system of licensing of all operators in the used oil system which should include provisions to control those processing unlawfully any quantities of used oil.*
- *The creation of an **ultimate "sink"** for the oil, even with minimal treatment, in order to provide for a relief mechanism in case the private collection and disposal system breaks down or abused the privileges of the licensing system.*
- *The creation of an ultimate destruction system such as an incinerator or the licensing of cement kilns for disposing (for a fee).*
- *The establishment of an environmental tax "green-tax" to provide funds for financing the "weaker" parts of the system.*

Other national activities could include:

- The regulation of the collection, transport and disposal of waste oils by i.e the preparation and adoption of pilot programmes so that:

    1) *The means and skills of collecting are not concentrated in monopolistic environments because this increases risks to the Government and the Environment.*
    2) *Free competition creates the need and routes to distribute some of the benefits of the organized management of waste oils to the multitude of generators and first line collectors on which any larger collection system will depend.*

3) *Under certain conditions opportunities are created to establish new enterprises (such as oil recycling) using different, perhaps advanced technologies leading to new products and/ or uses of this resource.*

4) *Only licensed operators, having the physical means and skills to engage in the handling of this potentially toxic material should be allowed to operate.*

- Make delivery of waste oil to licensed operators mandatory
- *Establish specifications for Waste Oil Derived Fuel and allow the distribution of such fuel to industry.*

- Prohibit the burning of unprocessed waste oil which does not meet the specifications of WODF unless an emergency can be justified.

- Establish an emergency route for unprocessed waste oil to the cement kilns, the EAC and the Cyprus Refinery to be used only in case the regeneration and reprocessing options become unavailable. In such a case two provisos should apply:

Each batch of oil:

a) should be well mixed and analysed for PCB´s before being granted a permission to be burned or processed with crude or asphalt.

a) In the case of burning, it must either be introduced into an already hot kiln at the normal operating temperature and/or be specified after the results of the analysis become available.

Batteries and accumulators

A plan for the management of waste batteries and accumulators has already been considered in a study for the "establishment of a management plan for batteries and accumulators".

Main activities under this programme are:

- The development and implementation of programmes for public awareness and sensitiveness
- To create national inventories of used batteries and accumulators and develop a control and monitoring programme.
- The promotion of programmes for the collection, recovery, recycling and disposal of used batteries.
- The promotion of substitution methods and encouraging reduction of the use of batteries
- Provision of motives for the marketing of batteries and accumulators with low content in dangerous substances or pollutants.

Other hazardous waste

The management of dangerous wastes it is a necessity and priority action for Cyprus for the protection of the public Health and the environment on one hand and for the enforcement of the E.U. policy in this sector. For this reason a national plan for the management of hazardous waste must be formulated that will include the following activities;

- The preparation of an inventory of hazardous waste and the implementation of a system for their monitoring and control
- To establish a collection and transport system (including municipal hazardous waste) that should consist of a depot of dangerous wastes from all small units, a mobile unit for the collection of dangerous wastes from towns and villages and special tracks for the collection and transport of wastes from industrial units, to a Central Treatment Plant (CTP).
- To establish facilities for the environmentally sound disposal of hazardous waste
- To establish a plan for the reduction of hazardous waste

4.8 Sector 8: Updating and adopting of National regulations on sewage discharges to the sea and rivers.

The current legal framework in Cyprus with respect to urban wastewater treatment and disposal has been recently updated and follows the provisions of the relevant EC Directive (91/271/EC). The proper enforcement of the national legislation is considered to be adequate enough to safeguard the environment from sewage discharges.

4.9 Sector 9: Prohibition of the Manufacture, Trade and New Uses of PCBS

In association with the national legislation, the Water Pollution Control Law. No. 106(I) of 2002 and relevant Regulations as well as the solid and/dangerous wastes Law No. 215(I) of 2002 and relevant/specific Regulations on PCBs/PCTs; a full programme is being put in place by preparing an inventory of contaminated equipment at the private sector, the identification of their PCBs content and their decontamination by 31st December 2010.

4.10 Sector 10: Phasing out of the use of the nine pesticides except for those for which WHO recommendations related to the safeguarding of human life suggest otherwise.

Cyprus legislation adopts the FAO code of Conduct on the Distribution and Use of Pesticides laws, as well as the London Guidelines for the exchange of information on Chemicals in International Trade (Prior Informed Consent), implemented in collaboration with FAO and IRPTC of E.U. Furthermore the pesticides regulations are in agreement with those fixed by the codex Alimentations Commission of the UN and WHO, as well on those of the EU Directives. Consequently the necessary framework is there and must be followed.

4.11 Sector 11: Establishment of a system of previous authorization by the competent national authorities for works which cause physical alterations on the natural state of the coastline or the degradation of coastal habitats.

The national legislative framework in Cyprus provides for the authorization of works which cause coastline degradation through laws 90/72, 22/61and 57(I)2001 which involve the issue of planning permissions, the creation of foreshore protection zones and the requirement of EIAs for selected projects.

CHAPTER 5: PRIORITY LIST

The following table presents a list of all the projects proposed under the preparation of the Cyprus National Action Plan. It must be noted that all the projects referred to are under consideration or construction and are funded by the Cyprus government. The final short-list will be possible to be completed when the "Strategic plan for the environment" is finalized and adopted by the Council of Ministers.

	On-going/Proposed Project	Time Framework
1	WTPs for communities with population greater than 2000	2012
2	Paphos WTP-Phase 2	2020
3	Larnaca WTP- Phase 2	2020
4	Famagusta WTP-upgrade	2007
5	Limassol WTP-Extension	2007
6	Larnaca/famagusta sanitary landfill	2008
7	Limassol sanitary landfill	2010
9	Refinery complete closure	2010
10	Hazardous waste treatment plant	2010

CHAPTER 6: PUBLIC PARTICIPATION

In the context of the preparation of the NAPs a stakeholders meeting including government services from the relevant ministries and NGOs took place on the third of September 2004. The meeting was under the chairman of the director of the Environent Service who was acting on behalf of the Permanent Secretary of the Ministry of Agriculture, Natural Resources and Environment.

Follow up meetings with various national authorities and stakeholders were held to clarify issues and pinpoint priority actions in order to finalize the adopted NAPs. The national authorities and stakeholders which met included the following:

- Secretary of the Union of Municipalities
- Representatives of the Cyprus Commerce nad Industrial Chamber
- Representatives of the Cyprus Organization of commerce and industry
- Representatives of the Environmentalists Movement
- Various national authorities; Ministry of commerce, Industry and Tourism, Ministry of Communications and Works, Environment Service, Water Development Department, Geological Survey Department and the City Sewerage Boards.

Public participation and stakeholders during the implementation of the proposed projects are covered by the relevant national legislation in force relating to planning permissions. The participation of the public and stakeholders is achieved through the implementation of the EIA process. Furthermore, a number of national authorities give frequent presentations, prepare leaflets and produce documents in relation to the state of the environment and the planned activities of the government. Finally, information campaigns on specific issues i.e proper disposal of waste oils etc. are launched by government authorities and NGOs.

However, more actions are needed to enhance the role of the civil society in the planning and implementation of environmental projects. Such actions could include:

- Capacity building exercises to identify the potential roles of NGOs in the implementation of the SAP and to make such institutions more accustomed to participation in decision making. These exercises should include workshops and seminars for al stakeholders and target groups.
- Enhancement and better coordination of information campaigns to increase public awareness on the SAP.

- Continue and expand publication and distribution of brochures, leaflets, posters, reports and other information material as well as the use of the media in all its forms.

CHAPTER 7: ECONOMIC INSTRUMENTS

Sewage

The construction and operation of central sewage systems as well as the waste treatment plants will require a significant budget on behalf of the government and the local authorities contributing to the task. The cost of these projects will be paid by the citizens of the communities in the form of local taxes and direct charges. The direct charges on the users are in accordance with the "polluters pay" principle" since they are in correlation to the water consumption. The charging system has been decided along with the studies made for the implementation of the central sewage systems and therefore there is no proposed action for this economic instrument.

The control and monitoring of the proper use of the central sewage system by industry and the general population will be funded by the government. The government will also fund the strengthening of the program for the reuse of sludge and treated effluents, mainly in the agricultural sector.

Urban solid waste

Cyprus has an established waste collection system which is funded by through a scheme of municipal waste collection charges. There are already government subsidy schemes in place for recycling initiatives and businesses. Schemes are also in place that satisfy the "polluters pay " principle by shifting the cost for the reduction of certain packaging wastes to the producer of the goods. A landfill tax scheme has also been studied that will operate upon completion of the sanitary landfills around the country. Finally, there are a number of public education and awareness projects that are sponsored by government funds or NGOs.

Air pollution

The governments economic policy on air pollution concentrates on the air pollution from the transport sector, mainly due to the limited industrial activity in the country. A range of economic instruments are in place for the reduction of air pollution and therefore there is no EI proposed for the purposes of the NAP. The existing instruments include:

- A consumption tax for the use of private vehicles
- A car prising system based on the car's cubic capacity that promotes the use of smaller, less polluting cars.
- A direct government tax on fuel products for the adoption of programs for the reduction of pollutants
- A carbon permit trading scheme for the industrial sector

Pollution caused by HG, CD and PB

Due to the small quantities of these chemicals produced, there is no need for any economic measures to be adopted.

Organohalogens

No economic measures are proposed.

Wastewater and solid waste form industrial installations

The industries that may cause marine pollution as discussed in the previous chapters include four wineries and a brewery and the local refinery. All these installations are served or planned to be served by a WTP therefore the collection, treatment and disposal of their waste are paid by the industries themselves. Furthermore, any effluents that are disposed in the central sewage system are charged according to the set municipal charges. The existing national legislation refers to non-compliance fees, in cases where the industries do not comply with the environmental permits in force. As a result, there are no economic measures to be proposed for this sector.

Lubricating oils, Batteries and accumulators, Hazardous wastes

The collection, treatment and disposal of waste oils is carried out by a private company that charges for its services, thus this is a self funded process. The same applies for the management of car batteries which is handled by a private company as well.

CHAPTER 8: INVESTEMENT PORTFOLIO (IP)

The investment portfolio is based on the results of the previous chapters of this study. It must be said that the IP does not consider the yearly operational costs and capital investment costs of the projects as these data were not available to the team. When the "Strategic plan for the environment" is finalized and approved by the Council of Ministers, these data will be available and the final list could be prepared. It should be noted that regardless of the scoring in the tables below, the competent authorities responsible for the completion of these projects have prepared their own timetable.

1. Individual project Sheet for the Famagusta WTP-upgrade project

Famagusta WTP-upgrade	**Description**
Location	Famagusta district
Sector	Sector 1-sewage
Main purpose	Upgrade the WTP to achieve secondary & tertiary treatment and increase the plant's capacity
Priority criteria	**Score (116)**
Project benefits	Public health-5 Pollution prevention- 4 Population served- 3
Expected development impacts	Tourism-5 Housing-3 Water & fertilizer for agriculture-3
Financial sustainability	Not likely to apply economic instruments - 2
Feasibility	Minimum changes-3

2. Individual project Sheet for the Paphos WTP-phase 2 project

Paphos WTP-phase 2	**Description**
Location	Paphos district
Sector	Sector 1-sewage
Main purpose	Completion of phase 2 of the Paphos WTP
Priority criteria	**Score (111)**
Project benefits	Public health-5 Pollution prevention- 4 Populations served- 2
Expected development impacts	Tourism-5 Housing-3 Water & fertilizer for agriculture-3
Financial sustainability	Not likely to apply economic instruments - 2
Feasibility	Minimum changes-3

3. Individual project Sheet for the Larnaca WTP-phase 2 project

Larnaca WTP-phase 2	**Description**
Location	Larnaca district
Sector	Sector 1-sewage
Main purpose	Completion of phase 2 of the Larnaca WTP
Priority criteria	**Score (116)**
Project benefits	Public health-5 Pollution prevention- 4 Population served - 3
Expected development impacts	Tourism-5 Housing-3 Water & fertilizer for agriculture-3
Financial sustainability	Not likely to apply economic instruments - 2
Feasibility	Minimum changes-3

4. Individual project Sheet for the Limassol WTP-Extension project

Limassol WTP-Extension	**Description**
Location	Limassol district
Sector	Sector 1-sewage
Main purpose	Completion of the extension of the Limassol WTP
Priority criteria	**Score (123)**
Project benefits	Public health-5 Pollution prevention- 4 Population served - 4
Expected development impacts	Tourism-5 Housing-3 Water & fertilizer for agriculture-3
Financial sustainability	Not likely to apply economic instruments - 2
Feasibility	Minimum changes-4

5. Individual project Sheet for the WTPs for communities with population greater than 2000 project

WTPs for communities with population greater than 2000	**Description**
Location	National
Sector	Sector 1-sewage
Main purpose	Serve communities with more than 2000 population with a CSS
Priority criteria	**Score (119)**
Project benefits	Public health-5 Pollution prevention- 4 Population served - 4
Expected development impacts	Tourism-5 Housing-3 Water & fertilizer for agriculture-3
Financial sustainability	Not likely to apply economic instruments - 2
Feasibility	Minimum changes-2

6. Individual project Sheet for the Larnaca/famagusta sanitary landfill project

Larnaca/famagusta sanitary landfill	Description
Location	Larnaca district
Sector	Sector 2-urban solid waste
Main purpose	Serve the Larnaca/Famagusta districts with a sanitary landfill
Priority criteria	**Score (103)**
Project benefits	Public health-5 Pollution prevention- 5 Population served - 3
Expected development impacts	Tourism-2 Housing-3
Financial sustainability	opportunities for economic instruments - 4
Feasibility	Minimum changes-3

7. Individual project Sheet for the Limassol sanitary landfill project

Limassol sanitary landfill	Description
Location	Limassol district
Sector	Sector 2-urban solid waste
Main purpose	Serve the limassol district with a sanitary landfill
Priority criteria	**Score (101)**
Project benefits	Public health-5 Pollution prevention- 5 Population served - 4
Expected development impacts	Tourism-3 Housing-4
Financial sustainability	opportunities for economic instruments - 4
Feasibility	Minimum changes-3

8. Individual project Sheet for the KEO brewery & winery WTP project

KEO brewery & winery WTP	Description
Location	Limassol district
Sector	Sector 1-sewage
Main purpose	Treat the waste of the KEO brewery & winery
Priority criteria	**Score (48)**
Project benefits	Public health-2 Pollution prevention- 5
Expected development impacts	General - 1
Financial sustainability	opportunities for economic instruments - 1
Feasibility	Minimum changes-3

9. Individual project Sheet for the Hazardous waste treatment plant project

Hazardous waste treatment plant	Description
Location	Nicosia district
Sector	Sector 7- Hazardous waste
Main purpose	Storage, treatment and disposal of hazardous waste
Priority criteria	**Score (66)**
Project benefits	Public health-5 Pollution prevention- 5
Expected development impacts	General - 1
Financial sustainability	Opportunities for economic instruments - 2
Feasibility	Minimum changes-2 Requires infrastructure -1

	Project in order of priority	Score
1	Limassol WTP-Extension	123
2	WTPs for communities with population greater than 2000	119
3	Larnaca WTP-phase 2	116
4	Famagusta WTP-upgrade	116
5	Paphos WTP-phase 2	111
6	Larnaca/famagusta sanitary landfill	103
7	Limassol sanitary landfill	101
8	Hazardous waste treatment plant	66
9	KEO brewery & winery WTP	48

CHAPTER 9: CONCLUSIONS AND COMMENTS

The NAP for Cyprus is based on current/proposed national programmes for each sector and especially on the "Strategic plan for the environment" and the "Strategic programme for the management of wastes". They are also based on a large extend on the obligations that derive from the European and national legal framework. The requirement of Cyprus (as a new EU member) to comply with the EU legal framework addresses the majority if not the whole of the projects required under the SAP. Therefore, the establishment of the NAP did not differ much form the already programmed actions and national planning.